

REMARKS/ARGUMENTS

In view of the foregoing amendments and the following remarks, applicant respectfully submits that the pending claims are not anticipated under 35 U.S.C. § 102 and are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. **If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, applicant respectfully requests that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.**

The applicant will now address each of the issues raised in the outstanding Office Action.

Objections

Claims 6, 7 and 25 are objected to because of typographical errors or the use of acronyms. Since these claims have been amended to correct the typographical errors and to replace the acronyms, these objections should be withdrawn.

Claim 36 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. However, since the base claim (and intervening claims) from which claim 36 depends is allowable as discussed below, claim 36 has not been rewritten at this time.

Rejections under 35 U.S.C. § 102

Claims 1, 2, 4-12, 32, 34, 37, 38, 47 and 48 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,771,662 ("the Miki patent"). Applicant respectfully requests that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Before introducing patentable features of the claimed invention, the Miki patent is introduced. Although the Miki patent does discuss MPLS domain and label switching, it is otherwise different from the present invention. The purpose of the Miki patent is to permit different "types" of packets to be processed by one node. (See, e.g., column 1, lines 29-44 and 65-67, column 11, lines 11-29, and OUT11 column of the table of Figure 2.). The Miki patent discusses IP-label, label-label, label-IP, and IP-IP packet forwarding. (See, e.g., column 6, lines 29-41.) It is important to note that the Miki patent often discusses ingress and egress routing units **in the context of a single network node**, not as separate network nodes of a transport network. (See, e.g., elements 13 and 14 of Figure 3.) At least some of the patentable features of the independent claims are now discussed.

Claims 1, 2, 4-8 and 47

Independent claim 1 is not anticipated by the Miki patent because the Miki patent does not teach (i) determining a first label and a second label using layer 2 destination information of the ingress data, nor does

it teach (ii) using the first label to forward the modified data towards an egress edge device of the transport network, wherein the second label is to be used by the egress edge device to associate the ingress data with a destination device and a channel, and wherein the edge device is a different node from the egress edge device, and is separated from the egress edge device by at least one communications link of a transport network. Claim 1 is reprinted below with these features depicted in bold typeface:

A method for processing ingress data by an edge device of a transport network, the method comprising:

- a) **determining a first label and a second label using layer 2 destination information of the ingress data;**
- b) adding the first and second labels to the data to generate modified data; and
- c) **using the first label to forward the modified data towards an egress edge device of the transport network**

~~wherein the second label is to be used by the egress edge device to associate the ingress data with a destination device and a channel, and~~

wherein the edge device is a different node from the egress edge device, and is separated from the egress edge device by at least one communications link of a transport network. [Emphasis added.]

Claim 47, as amended, is not anticipated for a similar reason.

The Miki patent does not teach determining a first label and a second label using layer 2 destination

information of the ingress data. The Examiner contends that the input L2 identifiers (See, column IN12 of the table of FIG. 14.) in the Miki patent are based on L2 **destination** information of ingress data. (See, Paper no. 20041122, page 3.) The Applicant respectfully disagrees.

The column IN12 is labeled "**INPUT** L2 IDENTIFIER" (Emphasis added). This has nothing to do with L2 destination information of ingress data. Accordingly, independent claim 1 is not anticipated by the Miki patent for at least this reason. Since claims 2 and 4-8 depend, either directly or indirectly, from claim 1, they are similarly not anticipated by the Miki patent. Independent claim 47 is similarly not anticipated by the Miki patent.

The Examiner contends that the output port number (See column OUT12 of the table of FIG 14.) teaches the claimed second label, and that this second label is used by an egress edge device to associate the ingress data with a destination device and channel. (See, e.g., Paper No. 20041122, page 3.) Although the output port number is used in an "internal header" in the Miki patent (so the packet is put on the proper line card, and then on the proper output port), the internal header is stripped (See, e.g., step S31 of Figure 12.) before it leaves the node. Consequently, it cannot be used by an egress device (node) -- as opposed to an intra-node egress unit.

Examiner seems to be interpreting ingress and egress routing "units" of a single "node" as ingress and egress "devices" (by which we mean "nodes"). See, e.g., FIG. 3 (and details in FIGs 4-12) of the Miki patent. However, in the claimed invention, devices are separate nodes, not units or components of a single node. Claims 1 and 47

have been amended to clarify that the egress edge device is a separate device (e.g., separated by at least one communications link of a transport network). Thus, since the ingress and egress "devices" of the Miki patent are in the same network node, the Miki patent does not teach this feature of the present invention. Accordingly, claim 1 is not anticipated by the Miki patent for at least this additional reason. Since claims 2 and 4-8 depend, either directly or indirectly, from claim 1, these claims are similarly not anticipated by the Miki patent.

Claims 9-12 and 48

Independent claim 9 is not anticipated by the Miki patent because the Miki patent does not teach determining a channel to a destination customer edge device based on a second label of egress data. Claim 9 is reprinted below with this feature depicted in bold typeface:

A method for **processing egress data, having** a first label and a **second label**, by an edge device of a transport network, the method comprising:
a) **determining a channel to a destination customer edge device based on the second label;**
b) forwarding the egress data on the channel determined.
[Emphasis added.]

The Examiner contends that the output port number OUT12 in Figure 2 of the Miki patent teaches a second label and that this second label is used to determine a

channel to a destination customer edge device. (See Paper No. 20041122, page 4.) Applicant respectfully disagrees.

First, the output port number in column OUT12 is not a label from egress data -- it is simply a port through which the egress data is to leave the node. Second, even assuming, arguendo, that the output port number could be characterized as a label from egress data, it is not used to determine a channel to a destination customer edge device. Accordingly, independent claim 9 is not anticipated by the Miki patent for at least this reason, Since claims 10-12 depend, either directly or indirectly, from claim 9, they are similarly not anticipated by the Miki patent. Independent claim 48 is not anticipated by the Miki patent for similar reasons.

Claims 32, 34, 37 and 38

Independent claims 32 and 37 are not anticipated by the Miki patent because the Miki patent does not teach a first route mapping a channel identifier corresponding to a destination customer edge device to a first label for forwarding data to a proper egress service provider edge device. Claim 32 is reprinted below with this feature depicted in bold typeface:

A device for use at the edge of a
layer 2 transport network, the device
comprising:
a) a storage facility for
storing
i) **a first route mapping a
channel identifier
corresponding to a**

- destination customer edge device to a first label for forwarding data to a proper egress service provider edge device** and a second label for forwarding data from the proper egress service provider edge device to the destination customer edge device, and
ii) a second route mapping an ingress second label to a channel identifier associated with a destination customer edge device; and
- b) a forwarding facility for
i) forwarding ingress data to an egress service provider edge device based on the first route, and
ii) forwarding egress data to a destination customer edge device based on the second route. [Emphasis added.]

Claim 37 is reprinted below with this feature depicted in bold typeface:

A layer 2 transport network for use by a source customer edge device and a destination customer edge device, both belonging to a same virtual private network, the source customer edge device having a list of channel identifiers for each customer edge device of the virtual private network, the layer 2 network comprising:

- a) a first transport network edge device, the first transport network edge device coupled with the source customer edge device and having

- i) a storage facility for storing **a first route mapping a first channel identifier, used by the source customer edge device and corresponding to the destination customer edge device, to a first label for forwarding data to a second transport network edge device** and a second label associated with the destination customer edge device, and
 - ii) a forwarding facility for forwarding data addressed to the destination customer edge device to the second transport network edge device based on the first label of the first route; and
 - b) the second transport network edge device, the second transport network edge device coupled with the destination edge device and having
 - i) a storage facility for storing a second route ~~mapping the second label to~~ a second channel identifier associated with the destination customer edge device; and
 - ii) a forwarding facility for forwarding the data to the destination customer edge device based on the second channel identifier of the second route.
- [Emphasis added.]

The Examiner contends that Figures 1 and 2 of the Miki patent teach a first route (row RT11) mapping a channel identifier (output port number 11 or 13)

corresponding to a destination customer edge device (destination IP address IP13) to a first label (OUTPUT L2 Identifier OUT13) for forwarding data to a proper egress service provider edge device (Host E12). (See Paper No. 20041122, pages 5-7.) Applicant respectfully disagrees.

First, an input port or an output port is not a channel identifier as claimed. Second, a destination IP address is not necessarily (and often will not be) a destination customer **edge device** as claimed. Indeed, in the Miki patent, the IP address of the host (IP13) will not be the same as the IP address of the router R13. Accordingly, independent claims 32 and 37 are not anticipated by the Miki patent for at least this reason. Since claim 34 depends from claim 32 and claim 38 depends from claim 37, these claims are similarly not anticipated by the Miki patent.

Rejections under 35 U.S.C. § 103

Claims 3 and 33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Miki patent in view of U.S. Patent No. 6,771,673 ("the Baum patent"). Applicant respectfully requests that the Examiner reconsider and withdraw this ground of rejection in view of the following.

The Examiner contends that the Baum patent teaches encapsulating modified data. Even assuming, arguendo, that this is true, the purported teaching of the Baum patent fails to compensate for the deficiencies of the Miki patent with respect to claims 1 and 32 discussed above. Therefore, claims 3 and 33 are not rendered

obvious by the Miki and Baum patents for at least this reason.

Claims 35 and 39-46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Miki patent, in view of the Baum patent, and further in view of U.S. Patent No. 6,205,488 ("the Casey patent"). Applicant respectfully requests that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Before addressing various patentable features of the present invention, the Casey patent is introduced. The Casey patent discusses VPNs over MPLS. (See, e.g., column 1, line 64-column 2, line 1.) Some routers have first table with LSPs to all other routers of the MPLS network (See, e.g., column 2, lines 4-7.) and a second table with LSPs to other routers of the MPLS network that belong to the same VPN (See, e.g., column 2, lines 7-11.). A "nested" or "peer" label 40 provides, to other virtual routers (VRs) of the same VPN, a label for an LSP tunnel to itself. (See, e.g., column 4, lines 31-60.) Note that this label just identifies the VPN; it does not identify a customer edge device. A VPN can span multiple "areas" via gateway routers.

The Examiner contends that (i) the Baum patent teaches a fourth value identifying a range associated with a newly added customer edge device and (ii) the Casey patent teaches a fifth value identifying a label base associated with the newly added customer edge device (citing block 50 of Figure 3.). The Examiner concludes that one skilled in the art would have been motivated to combine the purported teachings of the Baum and Miki

patents to provide up-to-date routing information in a network router for proper communications. The Examiner also concludes that one skilled in the art would have been motivated to combine the purported teachings of the Casey patent with the Miki patent to provide a first hop of a base network that can be used as a reference of a continuous set of labels. (See Paper No. 20041122, pages 10 and 11.) Applicant respectfully disagrees for reasons described below.

Claim 35

Since the purported teachings of the Baum and Casey patent fail to compensate for the deficiencies of the Miki patent with respect to claim 32, discussed above, even assuming, arguendo, that one skilled in the art would have been motivated to combine these patents as proposed by the Examiner, the proposed combination would still fail to teach or suggest a first route mapping a channel identifier corresponding to a destination customer edge device to a first label for forwarding data to a proper egress service provider edge device. Therefore, claim 35 is not rendered obvious by the Miki, Baum and Casey patents for at least this reason.

Claims 39-41 and 44-46

First, although the Baum patent discusses ranges of bits and ranges of L3 addresses, these ranges do not concern label ranges. Claims 39 and 44 have been amended to more clearly recite that the range pertains to a label range. Thus, these claims are not rendered obvious by

the Miki, Baum and Casey patents for at least this reason. Since claims 40 and 41 depend from claim 39 and since claims 45 and 46 depend from claim 44, these claims are similarly not rendered obvious by these patents.

Further with regard to dependent claims 41 and 46, these claims further recite that the range corresponds to a number of elements in a list of channel identifiers provisioned at the customer edge device. These claims further and more clearly distinguished the invention over the ranges discussed in the Baum patent.

Second, although the Casey patent discusses a base label, this is not the same as a label base -- a base from which labels can be determined -- as claimed. Further, the Examiner's motivation for combining the Casey and Miki patents -- to allow edge nodes in an MPLS network to learn the location and information relating to a new customer -- cannot be accomplished by the base label 50 of the Casey patent. This is because the base label 50 of the Casey patent simply acts as a FEC label used by label switched routers (LSRs) and is consequently changed ("switched") by each LSR in the shared MPLS network. (See, e.g., based label 50 of Figure 3 that changes from "xx.42" to "xz.19" to "zz.82" as the packet is forwarded by LSRs of the shared MPLS network. Thus, claims 39 and 44 are not rendered obvious by the Miki, Baum and Casey patents for at least this additional reason. Since claims 40 and 41 depend from claim 39 and since claims 45 and 46 depend from claim 44, these claims are similarly not rendered obvious by these patents.

Claims 42 and 43

Independent claim 42 is not rendered obvious by the Miki, Baum and Casey patents because these patents neither teach, or suggest, a machine-readable medium of a service provider transport network storing a list of channel identifiers for each of a plurality of customer edge devices of a second list (which belong to a plurality of virtual private networks of a first list). This feature is not even addressed in the rejection of claim 42. Accordingly, independent claim 42 is not rendered obvious by the cited patents for at least this reason. Since claim 43 depends from claim 42, it is similarly not rendered obvious by these patents.

Conclusion

In view of the foregoing amendments and remarks, applicant respectfully submits that the pending claims are in condition for allowance. Accordingly, applicant requests that the Examiner pass this application to issue.

Respectfully submitted,

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